

Caltech Optical Observatories / NASA Jet Propulsion Laboratory
Palomar Adaptive Optics

Palomar LGSAO Engineering Summary 07/24/07 UT

Afternoon:

- Laser 5.0W.
- BTO and LLT aligned and tested.
- Final alignment of laser output beam still needed.

Night log:

1930 Replacing LLT focus actuator.
 Old actuator apparently broken. Replaced with spare.

2015 BTO checkout.
 Trouble with ghost on Q2. Eventually diagnosed by rotating
polarization stage -4 deg. Left at -2 deg. offset.

2110 Opening dome.

2120 Beginning AO checkout.

2130 Sending spotters out.

2140 NGS-AO performance:
 Bright star Strehl: 65%
 Open-loop FWHM (TT only): 0.30"

2145 Preparing to project at zenith.
 Waiting on BTO software updates.

2150 Laser powered off due to door timer. Restarting.

2206 Projecting at zenith. LLT boresight better than 5".

Foc	Pk	x	y
	9	11.9	10.9
0	18	17	15
+30	12	18	17
0	21	14	13
-30	26	13	12
-60	16	16	15
-30	22	14	12

LLT_FOCUS = 11830

ACQ_Z:

-200	21	16	15
+200	20	17	14
+100	25	15	14
0	LEAVE AT ACQ_Z=10275		

LASER_FOCUS:

16000	24.5	14.2	12.6
14000	20.3	14.2	11.4
12000	19.1	12.0	11.9
16000	28.1	14.7	11.1

2220 Laser powered off due to inadvertent hitting red button in
hallway. Restarting.

2240 AB translating laser output lens 7mm outward.

2319 Back on sky. Able to realign 589nm without closing dome!

2320 Running laser_focus automation: 'focus1'

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Laser shuttered: RADAR, then BTO.
2330 BTO now unable to lock on 589nm laser. Unclear why.
2335 Closing dome to test BTO.
2344 Opening dome for projection at zenith. Laser power = 5.1 W.

	pk	x	y
11K	23	15	14
13K	31	15	13
15K	50	15	15
16K	54	14	13

0015 NETWORK PROBLEMS

Extremely slow connection to 'allsky', spotty connection between 'lgs' and 'bto'. Cannot operate without allsky connection. Rebooting allsky.

0025 Translating final laser focus lens another 7mm outward.
0045 Test-firing laser in dome. Successful.
0055 Projecting at zenith.

10K	44	15	14
12K	66	14	13
14K	78	14	12
16K	62	16	15

Final laser focus: 14000

0100 Repeating LLT focus

11830	90	15	11
11860	80	16	13
11800	74	15	12
11820	82	14	12

LLt_focus: 11820

0105 Checking LLT collimation with laser

background: bkg...60645.fits
offset llt_focus +150:...64354.fits; image somewhat comatic
offset llt_focus -150:...64434.fits; blob on same side.
not coma after all.
in focus: ...64639.fits
...64679.fits

0115 Moving to V=11 star for LGS checkout: TYC 2708-1091-1.

Getting 70 cts @ 100 Hz. Correction looks good, but keep getting shuttered by IRCAM (meteors perhaps?)
Strehl ~28% (max 35%).

0205 Moving to NGC 7331. Using core as TTref.
LOWFS: 100cts @ 500 Hz

0250 PHARO crash. Disk use made xpharo grind to halt. Had to kill process.

0255 Back on NGC 7331. Very nice imaging in H and Ks.

0410 Moving to new target: I22036+5306

0415 AO telemetry crash. Restarting TAO.

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0425 Reacquiring I2206+5306

0430 Taking images; image quality poor (~0.3" FWHM in K).

0450 Shuttering laser for FAA compliance.

AB powering down laser.

0455 Investigating LOWFS vignetting. Found vignetting in LOWFS pupil along extreme right edge of ACQ FOV.

0530 Calling night.